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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,360	07/26/2001	Marco Giovanardi	2001-01111-01	7591

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EXAMINER

CHAU, COREY P

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/916,360	Applicant(s) GIOVANARDI ET AL	
	Examiner Corey P Chau	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 16-17 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/03/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

- I. Claims 1-15 and 18, drawn to a device and method for reducing vibration, classified in class 381, subclass 71.1.
 - II. Claims 16 and 17, drawn to a method of constructing a device for reducing vibration, classified in class 29, subclass 896.93.
1. Inventions I and II are related as process of making (invention II) and product made (invention I). The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product, invention I can be made by another and materially different process from invention II.
 2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
 3. During a telephone conversation with William Cray on 4/13/05 a provisional election was made without traverse to prosecute the invention of I, claims 1-15 and 18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16 and 17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 4, 5, and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

6. The application recites in Claim 4, "the active damper further comprises a flexible insulator". However there is no description of a flexible insulator in the specification.

7. Claim 5 depends on Claim 4 and is rejected for the reasons stated above.

8. The application recites in Claim 10, "a protective, insulating encapsulation layer substantially surrounding the active damper and the passive damper". However there is no description of a protective, insulating encapsulation layer substantially surrounding the active damper and the passive damper.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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11. The term "approximately" in claim 13 is a relative term, which renders the claim indefinite. The term "approximately" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 13 recites the limitation "approximately 50 grams", which does not limit the mass of the device to 50 grams. Bases on different interpretations a wide range of numbers can be approximately 50 grams.

12. The term "about" in claim 14 is a relative term, which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 14 recites the limitation "about 0.005 inches...about 0.010 inches and ...about 0.030 inches", which does not limit the thickness of the passive damper, the constraining layer, and the device to 0.005 inches, 0.010 inches, and 0.030 inches respectively. Bases on different interpretations a wide range of numbers can be about 0.005 inches, about 0.010 inches, and about 0.030 inches.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

14. Claims 1-6, 9-10, 12, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6700304 to Fuller et al. (hereafter as Fuller).

15. Regarding Claim 1, Fuller discloses a device for reducing vibration in a section of material (12), said vibration causing an acoustic disturbance in a range of frequencies detectable by a target (i.e. active/passive distributed absorber for vibration and sound radiation control) (Fig. 1; column 2, lines 10-19), the device comprising: an active damper (14) comprising an electroactive element in electrical communication with an electrode (column 2, lines 20-33; column 5, lines 28-37), the active damper located a first distance from said section of material (Fig. 1); a passive damper comprising a sound reducing material (i.e. a mass layer 16 comprises a lead layer, which read on the passive damper), said passive damper located a second distance from said section of material (Fig. 1, reference 16; column 4, lines 37-59), wherein said second distance is greater than said first distance (Fig. 1), and wherein at least one of the active damper and the passive damper reduces the magnitude of the acoustic disturbance reaching the target (column 2, lines 3-9 and lines 54-63).

16. Regarding Claim 2, Fuller discloses a constraining layer disposed in contact with said passive damper (i.e. a mass layer 16 comprises a lead layer, which read on the passive damper and the mass layer may include masses within the mass layer 16, such as steel, aluminum, composite fiberglass material and the like, which read on a constraining layer, therefore disposed in contact with each other in order to make the mass layer of Fuller)(Fig. 1; column 4, lines 37-59).

17. All elements of Claim 3 are comprehended by Claim 2. Claim 3 is rejected for the reasons stated above apropos to Claim 3 (Fig. 1; column 4, lines 37-59).

18. Regarding Claim 4, as best understood with regards to the 112, 1st problem as mention above, Fuller discloses the active damper further comprises a flexible insulator upon which said electrode is disposed (i.e. plastic read on the flexible insulator)(Fig. 10; column 2, lines 50-53; column 5; lines 28-44; column 6, lines 51-55).

19. Regarding Claim 5, as best understood with regards to the 112, 1st problem as mention above, Fuller discloses the electroactive element is bonded to the insulator so that in-plane strain in said electroactive element is effectively shear coupled between said electroactive element and said flexible insulator (column 2, lines 50-53; column 5; lines 28-44; column 6, lines 51-55).

20. Regarding Claim 6, Fuller discloses said active damper damps low frequency acoustic disturbances and said passive damper damps high frequency acoustic disturbances (column 1, lines 13-31; column 5, lines 1-14; column 6, lines 5-50).

21. Regarding Claim 9, Fuller discloses said active damper (14) is in mechanical contact with said section of material (12) (Fig. 1).

22. Regarding Claim 10, as best understood with regards to the 112, 1st problem as mention above, Fuller discloses a protective, insulating encapsulation layer substantially surrounding the active damper and the passive damper (i.e. the mass layer 16 may include masses within the mass layer 16, such as steel, aluminum, composite fiberglass material and the like, wherein the composite fiberglass reads on a protective, insulating encapsulation layer substantially surrounding the active damper and the passive damper)(Fig. 1; column 4, lines 37-59).

23. Regarding Claim 12, Fuller discloses the active damper further comprises a compensator including at least one positive position feedback (PPF) filter implemented on a digital signal processor (DSP) (Figs. 19 and 20; column 10, line 37 to column 39).

24. Regarding Claim 18, Fuller discloses a method of damping vibration in a section of material (12), said vibration causing noise audible to a human ear, comprising the steps of: bonding an actuator having active damping means (14) and passive damping means (i.e. a mass layer 16 comprises a lead layer, which read on the passive damper) to a desired portion of the section of material (Fig. 1; column 2, lines 20-33; column 4, lines 37-59; column 5, lines 28-37); activating the active damping means to damp low frequency vibration in the section of material (column 1, lines 13-31; column 5, lines 1-14; column 6, lines 5-50); wherein the active damping means and the passive damping means together reduce noise to a greater extent than would be possible if the active damping means or the passive damping means act alone (column 2, lines 3-9 and lines 54-63).

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6700304 to Fuller in view of U.S. Patent No. 5261200 to Sasaki et al. (hereafter as Sasaki).

27. Regarding Claim 7, Fuller discloses a sound reducing material (i.e. lead), but does not expressly disclose the sound reducing material comprises a viscoelastic material. However it would have been obvious to one having ordinary skill in the art that other sound reducing material can be utilize such as viscoelastic material, as taught by Sasaki (column 8, lines 40-68).

28. Regarding Claim 15, Fuller discloses a device for reducing audible noise in a vehicle by reducing vibration of a vehicle section (Fig. 1; column 1, lines 8-24), comprising: an actuator (14) attached to a surface of the vehicle section, the actuator comprising at least one piezoelectric element and at least one electrode (column 2, lines 20-33; column 5, lines 28-37); and a constraining layer (i.e. the mass layer 16 may include masses within the mass layer 16, such as steel, aluminum, composite fiberglass material and the like, which read on a constraining layer) (Fig. 1; column 4, lines 37-59); wherein the at least one piezoelectric element and the at least one electrode are in electrical communication with each other (column 2, lines 20-33; column 5, lines 28-37).

Fuller discloses a sound reducing material (i.e. lead), but does not expressly disclose the sound reducing material comprises a viscoelastic material. However it would have been obvious to one having ordinary skill in the art that other sound reducing material can be utilize such as viscoelastic material, as taught by Sasaki (column 8, lines 40-68). Therefore, Fuller as modified discloses a viscoelastic portion, which is located outside the actuator with respect to the surface of vehicle section (Fig. 1); and a constraining layer having a higher stiffness than said viscoelastic portion; the constraining layer is in mechanical contact with the viscoelastic layer (i.e. a mass layer 16 comprises a viscoelastic layer and an aluminum layer, therefore is in mechanical contact in order to make the mass layer of Fuller)(Fig. 1; column 4, lines 37-59); and wherein the device functions to reduce noise by the actuator damping specific sound modes and by the viscoelastic portion damping all of the sound modes (column 2, lines 3-9 and lines 54-63).

29. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6700304 to Fuller in view of U.S. Patent No. 5261200 to Sasaki as applied to claim 7 above, and further in view of U.S. 6501644 to Silverman et al (hereafter as Silverman).

30. Regarding Claim 8, Fuller as modified discloses a viscoelastic layer, but only generally; no specific details are taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known viscoelastic materials. Silverman for example discloses an example of suitable viscoelastic materials are Sorbothane from

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Sorbothane Company, rubber materials of the type available from the E.A.R. Co., and a Japanese source material, similar to Sorbothane, called Sorbo (column 4, lines 10-25).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ any known viscoelastic materials, such as that of Silverman. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fuller with the teaching of Silverman to utilize viscoelastic materials such as Sorbothane from Sorbothane Company, rubber materials of the type available from the E.A.R. Co., or a Japanese source material, similar to Sorbothane, called Sorbo (i.e. viscoelastic materials is selected from the group of viscoelastic materials consisting of: 3M Damping Foil, Soundcoat Soundfoil, EAR Tad Pad and Sorbothane).

31. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6700304 to Fuller in view of U.S. Patent Application Publication No. 20020092699 to Worrell et al. (hereafter as Worrell)

32. Regarding Claim 11, Fuller discloses an active damper (14), but does not expressly disclose the active damper comprises a QuickPack.RTM. actuator. However it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize any known active damper such as an active damper comprising a QuickPack.RTM. actuator as taught by Worrell (page 2, paragraph 0019).

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33. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6700304 to Fuller.

34. Regarding Claim 13, as best understood with regards to the 112, 2nd problem as mention above, Fuller discloses the total mass of the device (i.e. DAVA) depends on the overall mass of the structure and motion (column 3, line 66 to column 4, lines 19), but does not expressly discloses the total mass of the device does not exceed approximately 50 grams. However it would have been obvious to one having ordinary skill in the art that the total mass of the device of Fuller is capable of not exceed approximately 50 grams depending on the overall mass of the structure and motion (i.e. the mass of the device depend on the overall mass of the structure used to perform the testing, therefore the mass of the device of Fuller can be modified base on the overall mass of the structure used for testing).

35. Regarding Claim 14, as best understood with regards to the 112, 2nd problem as mention above, Fuller discloses the thickness of the passive damper (i.e. lead) is about 0.005 inches, the thickness of the constraining layer (i.e. aluminum) is about 0.010 inches and the total thickness of the device is about 0.030 inches (i.e. the lead layer is **about** 0.005 inches and the aluminum layer is **about** 0.010 inches) (column 4, lines 37-59; column 5, lines 1-14).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Sinh can be reached on (571)272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 15, 2005

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XU MEI
PRIMARY EXAMINER